

TELEX COMMUNICATIONS, INC.

9600 Aldrich Ave., So. Minneapolis, MN 55420 U.S.A.

W6BHZ 97048

## ORDER NO. 242S

Model BN-86 Balun

Voltage-type Balanced-to-Unbalanced  
Transformer

PN 804217-4

# INSTRUCTION MANUAL

## General Description

This balun is a ferrite, balanced to unbalanced, antenna matching device. With a transformation ratio of 1:1, the balun will couple into any 50 ohm balanced system such as dipoles, multiband doublets and beam antennas.

This balun is supplied with stainless steel hardware except for eyebolts.

For higher power and higher VSWR, use the Hy-Gain BN-4000 current-type balun rated at 2000 watts ave., 4000 watts PEP.

## CAUTION

**DO NOT** use this balun with any type of antenna tuner or match box when the VSWR (before matching) is greater than 3:1. If the VSWR is below 3:1, a match box can be used as long as the power levels are kept below the limits shown in the Specifications. When these power and VSWR limits are exceeded, the extremely high standing wave voltage present at the feedpoint causes the breakdown voltage of the balun to be exceeded.

## Specifications

### Electrical

Impedance .....	50 ohms
Frequency Range .....	3 to 30 MHz
Insertion Loss .....	negligible (less than 1 dB)
SSB/CW Power Handling Capabilities .....	1500 W PEP, 800 Ave at less than 2:1 VSWR 500 W PEP at less than 3:1 VSWR
RTTY Power Handling Capabilities .....	500 W continuous at less than 2:1 VSWR

### Mechanical

Weight .....	1 lb. (0.45 kg)
Dimensions .....	3 1/4" x 6 1/4" (8.3 cm x 15.9 cm)
Input Receptacle .....	SO-239
Output Receptacle .....	standard terminal lugs
Weather Protection .....	weatherproof housing with condensing drain opening
Housing Material .....	highimpact injection molded, Cycolac® plastic

## Mounting on Boom or Mast

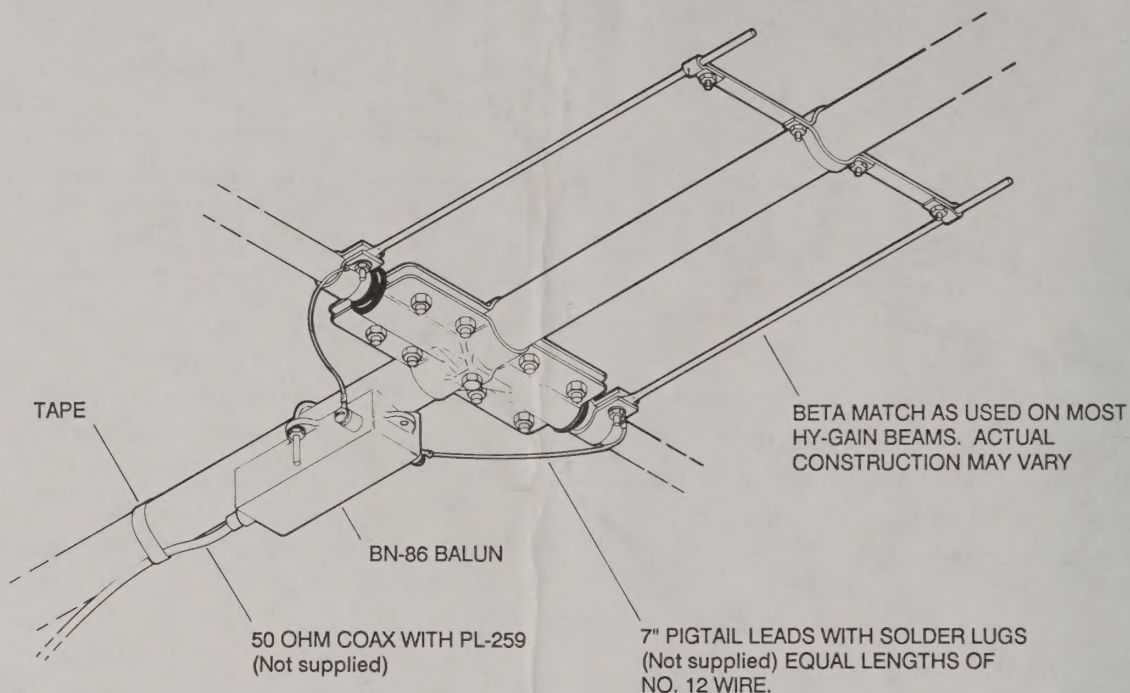
Refer to Figures 1 and 2.

Place U-bolt around mast or boom - diameter 1 3/8" to 2 3/8".

Place balun against mast or boom and insert the U-bolt through the holes on the sides of the balun.

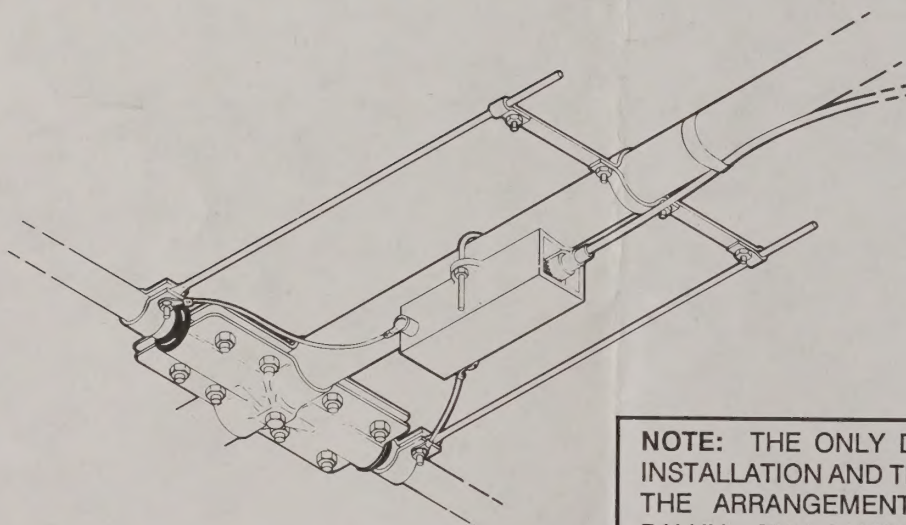
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**Figure 1**  
**Typical Balun Installation**

AA-0242-C-004



**NOTE:** THE ONLY DIFFERENCE BETWEEN THIS INSTALLATION AND THE TYPICAL INSTALLATION IS THE ARRANGEMENT AND LOCATION OF THE BALUN. THE SAME CALLOUTS APPLY TO BOTH ILLUSTRATIONS.

**Figure 2**  
**Alternate Balun Installation**

Tighten all hardware securely. Connect the leads to the driven element. (See Note)

Connect the coax to the receptacle on the balun.

**NOTE:** Fasten the balun as close as possible to the driven element. Leads from the two terminal outputs to the driven element should not exceed either 7" or existing lengths of the coax leads. Longer lengths will lower the resonant frequency of the antenna system. Make sure these two wires *do not touch* the driven element bracket.

**NOTE:** Always connect the balun directly to the driven element. In some antennas the beta match is connected to the driven element with two insulated wires. These wires from the beta match and the wires from the balun should both be connected to the driven element. When using this balun with the Hy-Gain TH7DX or TH5/MK2 antennas, disregard this note.

## Mounting on a Doublet System

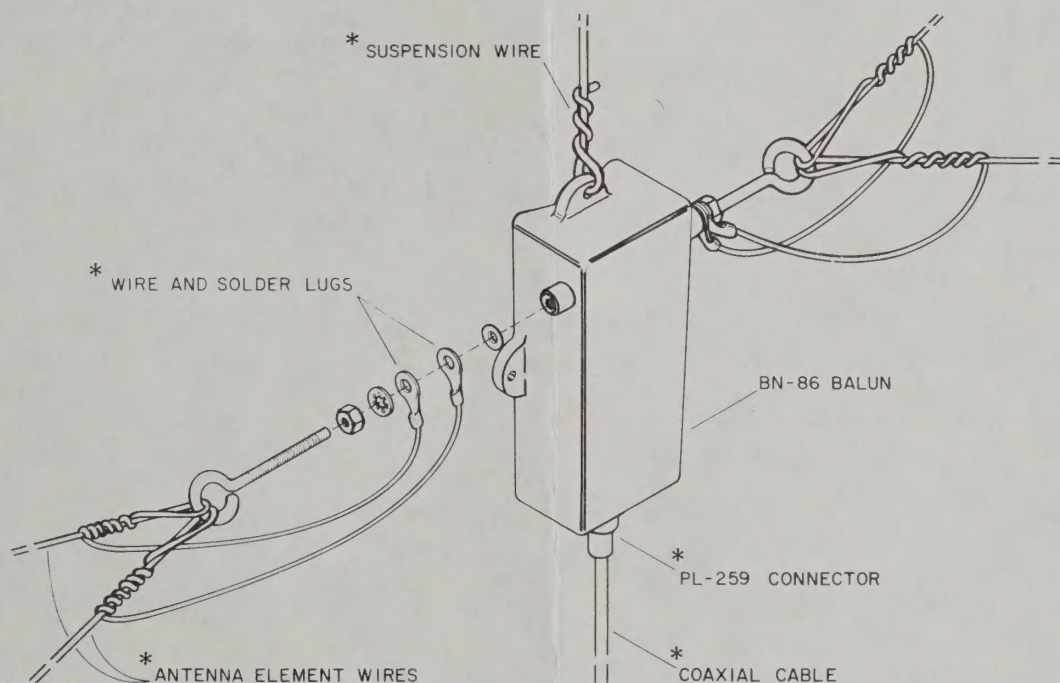
Refer to Figures 3 and 4.

Insert two eyebolts in brass fittings at top of balun.

Hook doublet wires to eyebolts (the balun replaces the insulator completely).

Connect coax to receptacle on balun.

AA-0242-C-002

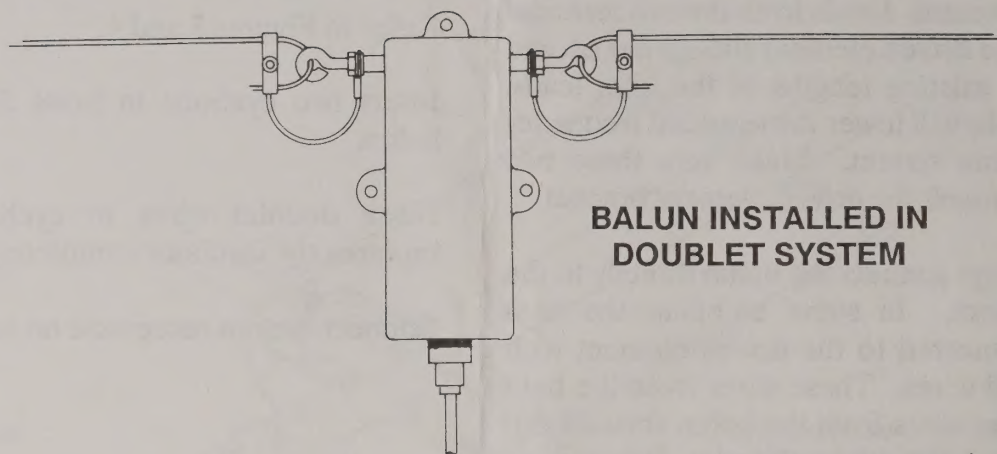


\* ITEMS NOT SUPPLIED AS PART OF THIS PRODUCT

**Figure 3**  
**Dipole, Doublet or inverted "V" Antenna Arrangement**

**NOTE:** An ohmeter check of the balun at all points will show a DC short. *This is normal!* This is not a short with respect to RF energy at the balun's design frequency.





**Figure 4**  
**Typical Doublet Antenna Arrangement**

## Weatherproofing

The coaxial connection may be weatherproofed with hand-moldable plastic Coax-Seal®. This substance should be applied liberally to the connection and pushed into tight areas for complete sealing.

### CAUTION

This substance permanently seals the coaxial connection and is very difficult to remove from the connector.

## Customer Service

If you require any assistance in resolving a problem with a Telex/Hy-Gain product, please phone: 612-887-5528 or 612-884-4051. To order parts phone: 402-467-5321 and ask for Customer Service, or 402-465-7022 direct.

## PARTS LIST

Part No.	Description	Qty
873424	Balun Assembly .....	1
872079	Parts Pack, 242S .....	1
540087	U-bolt, #10-24 x 2 1/2" x 2 3/4" stainless steel .....	1
540066	Eyebolt, 1/4" x 1 1/2" .....	2
554099	Nut, hex, 1/4"-20 .....	4
554071	Nut, hex, #10-24 .....	2
562961	Lockwasher, internal, 1/4" .....	5
500156	Bolt, hex head, 1/4"-20 x 3/8" .....	2
850050	Coax-Seal® .....	1

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